

WE CLAIM:

1. An intelligent electronic device for monitoring electrical parameters in an electrical circuit, the intelligent electronic device comprising:

a sensor configured to be coupled with the electrical circuit and sense at least one of current and voltage in the electrical circuit, the sensor also configured to generate a signal indicative of the at least one of current and voltage;

a processor coupled with the sensor, wherein the processor is configured to generate a measurement signal indicative of the at least one of current and voltage in response to the signal;

the processor configured to concurrently provide a first intelligent electronic device functionality comprising a first security access and a second intelligent electronic device functionality comprising a second security access;

wherein the first security access and the second security access are each configured to provide user access to at least one mutually exclusive function.

2. The intelligent electronic device of claim 1, wherein the first intelligent electronic device functionality and the second intelligent electronic device functionality each exclusively comprise at least one of a circuit breaker control functionality, a power quality functionality, a billing power monitoring functionality, a protective relay functionality, and a sequence of events recording functionality.

3. The intelligent electronic device of claim 1, wherein the first security access is enabled with a first user identification and the second security access is enabled with a second user identification.

4. The intelligent electronic device of claim 3, wherein at least one of the first user identification and the second user identification includes a permissive signal, the permissive signal indicative of when a predetermined condition is met.

5. The intelligent electronic device of claim 4, wherein the predetermined condition comprises enablement of a safety lockout mechanism.

6. The intelligent electronic device of claim 4, wherein the predetermined condition comprises the status of a digital input to the intelligent electronic device.

7. The intelligent electronic device of claim 4, wherein the predetermined condition comprises a determined time period.
- 5 8. The intelligent electronic device of claim 1, further comprising an interface coupled with the processor, wherein the processor is configured to provide an energy parameter to the interface as a function of the measurement signal.
- 10 9. The intelligent electronic device of claim 8, wherein the interface is configured to receive a first user identification to enable the first security access and a second user identification to enable the second security access.
- 15 10. The intelligent electronic device of claim 8, wherein the first intelligent electronic device functionality and the second intelligent electronic device functionality are configured to share the interface.
- 20 11. The intelligent electronic device of claim 8, wherein the interface comprises a biometric identification device coupled with the processor, wherein the biometric identification device is configured to identify a user as part of at least one of the first security access and the second security access.
- 25 12. The intelligent electronic device of claim 11, wherein the biometric identification device comprises a fingerprint scanner.
- 30 13. The intelligent electronic device of claim 11, wherein the biometric identification device comprises a face recognition unit.
14. The intelligent electronic device of claim 11, wherein the biometric identification device comprises a retinal scanner.
15. The intelligent electronic device of claim 1, wherein the processor comprises a first processor and a second processor, the first processor configured to provide the first intelligent electronic device functionality and the second processor configured to concurrently provide the second intelligent electronic device functionality.

16. The intelligent electronic device of claim 15, wherein the second processor is configured to function independent of the first processor.
- 5 17. The intelligent electronic device of claim 16, wherein the first intelligent electronic device functionality includes a billing power monitoring functionality and the second intelligent electronic device functionality includes a protective relay functionality.
- 10 18. The intelligent electronic device of claim 1, wherein the first intelligent electronic device functionality includes a protective relay functionality.
19. The intelligent electronic device of claim 1, wherein the first intelligent electronic device functionality includes a circuit breaker control functionality.
- 15 20. The intelligent electronic device of claim 1, wherein the first intelligent electronic device functionality includes a billing power monitoring functionality and the second intelligent electronic device functionality includes a protective relay functionality.
- 20 21. The intelligent electronic device of claim 1, wherein the first intelligent electronic device functionality includes a power quality functionality and the second intelligent electronic device functionality includes a protective relay functionality.
- 25 22. A method of secure access to an intelligent electronic device, the method comprising:
- providing an intelligent electronic device configured to monitor electrical parameters of an electrical circuit in a power system;
- 30 prompting for entry of a user identification with the intelligent electronic device;
- allowing access to a first intelligent electronic device functionality provided by the intelligent electronic device only as a function of entry of a first user identification; and
- allowing access to a second intelligent electronic device functionality provided

by the intelligent electronic device only as a function of entry of a second user identification, wherein the first intelligent electronic device functionality and the second intelligent electronic device functionality both include independent functions.

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23. The method of claim 22, wherein the intelligent electronic device is operating the first and second intelligent electronic device functionalities in parallel.

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24. The method of claim 22, further comprising performing a plurality of intelligent electronic device functionalities concurrently within the intelligent electronic device, wherein the intelligent electronic device functionalities include at least two of a circuit breaker control functionality, a power quality functionality, a billing power monitoring functionality, a protective relay functionality and a sequence of events recording functionality.

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25. The method of claim 22, wherein allowing access comprises receiving as one of the first user identification and the second user identification a security code and a permissive signal, wherein the permissive signal indicates that a predetermined condition has been met.

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26. The method of claim 22, wherein allowing access comprises receiving as one of the first and second user identification a security code from a biometric identification device.

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27. The method of claim 22, wherein allowing access comprises comparing the first user identification and the second user identification to a plurality of stored user identifications and enabling secure access to the respective first and second intelligent electronic device functionalities as a function of a match.

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28. The method of claim 22, wherein prompting for entry of the user identification is in response to a request to access one of the first and second intelligent electronic device functionalities.

29. The method of claim 22, wherein prompting for entry of the user identification comprises communication of a plurality of stored user identifications over a communication medium to the processor, the processor configured to compare the stored user identifications to the first and second user identification.

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30. An intelligent electronic device configured to monitor electrical parameters in an electrical circuit, the intelligent electronic device comprising:

a processor operable in the intelligent electronic device to send and receive electrical signals that include electrical signals indicative of electrical parameters in the electrical circuit;

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a memory device coupled with the processor, wherein the memory device is configured to store parameters related to the electrical signals indicative of electrical parameters in the electrical circuit;

wherein the processor is configurable to allow access to a first data parameter stored in the memory device as a function of a first security signal, wherein the first data parameter is included in a first intelligent electronic device functionality; and

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wherein the processor is configurable to allow access to a second data parameter stored in the memory device as a function of a second security signal, wherein the second data parameter is included in a second intelligent electronic device functionality.

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31. The intelligent electronic device of claim 30, wherein the first and second security signals comprises a respective first and second user identification.

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32. The intelligent electronic device of claim 30, wherein the processor is configured to operate the first and second intelligent electronic device functionalities concurrently.

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33. The intelligent electronic device of claim 30, wherein one of the first and second security signals comprises a security code and a permissive signal.

34. The intelligent electronic device of claim 30, further comprising a biometric identification device, wherein at least part of the security code is generated by the biometric identification device.

35. The intelligent electronic device of claim 30, wherein at least one of the first and second security signals are transmitted over a communication medium.
- 5 36. The intelligent electronic device of claim 30, further comprising a communication link coupled with the processor, wherein the processor is configured to request a plurality of stored security signals be communicated over the communication link to compare with the first and second security signals.
- 10 37. An intelligent electronic device configured to monitor electrical parameters in an electrical circuit, the intelligent electronic device comprising:  
a memory device configured to store instructions;  
instructions in the memory device to process and store data indicative of electrical parameters sensed on the electrical circuit;  
15 instructions in the memory device to concurrently perform billing power monitoring functionality and protective relay functionality as a function of the sensed electrical parameters;  
instructions in the memory device to configure the intelligent electronic device to allow access to the billing power monitoring functionality only when a first user  
20 identification is provided; and  
instructions in the memory device to configure the intelligent electronic device to allow access to the protective relaying functionality only when a second user identification is provided.
- 25 38. The intelligent electronic device of claim 37, further comprising instructions in the memory device to enable access to one of the billing power monitoring functionality and the protective relay functionality with the same interface.
- 30 39. The intelligent electronic device of claim 37, further comprising instructions in the memory device to concurrently perform at least one of a circuit breaker control functionality, a power quality functionality and a sequence of events recording functionality.

40. The intelligent electronic device of claim 37, wherein the processor comprises a microprocessor and a digital signal processor in cooperative operation.

5 41. The intelligent electronic device of claim 37, further comprising instructions in the memory device to verify a determined condition has been met prior to providing access, wherein the determined condition comprises at least one of enablement of a safety lockout mechanism, transition of a digital input and a determined time period.

10 42. A method of securing access to an intelligent electronic device via a graphical user interface that includes a display and a selection device, the method comprising:

retrieving a security access entry for presentation on the display;

displaying the security access entry on the display;

receiving one of a plurality of security signals entered as a function of the

15 selection device into the security access entry;

in response to a first security signal, allowing access to a first intelligent electronic device functionality available within the intelligent electronic device; and

20 in response to a second security signal, allowing access to a second intelligent electronic device functionality available within the intelligent electronic device, wherein each of the first and second electronic device functionalities include a mutually exclusive function.